

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

26. (Previously presented) Apparatus for computerized breath analysis comprising:

a breath receiver in fluid communication with a subject; and

a breath analyzer coupled to said breath receiver which analyzes at least one breath of the subject, wherein said apparatus provides an indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

27. (Previously presented) Apparatus for computerized breath analysis according to claim 26 and wherein said discrepancy is utilized to provide an indication of the arterial carbon dioxide partial pressure of the subject.

28. (Previously presented) Apparatus for computerized breath analysis according to claim 26 and wherein said breath analyzer comprises a carbon dioxide analyzer and an oxygen analyzer.

29. (Previously presented) Apparatus for computerized breath analysis according to claim 28, said apparatus also comprising a computational unit, and wherein:

said oxygen analyzer provides values of the partial pressures of inspired and expired oxygen in said at least one breath of the subject; and

said computational unit utilizes the difference between said values to provide said indication of the discrepancy between said end tidal carbon dioxide partial pressure in breath of the subject and said arterial carbon dioxide partial pressure of the subject.

30. (Previously presented) Apparatus for computerized breath analysis according to claim 29 and wherein said discrepancy is utilized to provide an indication of the arterial carbon dioxide partial pressure of the subject.

31. (Previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising a respiration diagnosis generator providing an indication of the respiratory status of the subject based on said indication of said discrepancy between said end tidal carbon dioxide partial pressure in breath of the subject and said arterial carbon dioxide partial pressure of the subject.

32. (Previously presented) Apparatus for computerized breath analysis according to claim 30 and also comprising a respiration diagnosis generator providing an indication of the respiratory status of the subject based on said indication of the arterial carbon dioxide partial pressure of the subject.

33. (Previously presented) Apparatus according to claim 26 and wherein said breath analyzer performs analysis of at least one breath waveform.

34. (Previously presented) Apparatus according to claim 30 and wherein said breath analyzer performs analysis of at least one breath waveform.

35. (Previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising a pulmonary volume meter, and wherein respiratory volume measured by said meter is utilized to provide said indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

36. (Previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising a pulmonary volume meter, said pulmonary volume meter providing flow rate information, and wherein said flow rate information is utilized to provide said indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

37. (Previously presented) Apparatus for computerized breath analysis according to claim 27 and also comprising a pulmonary volume meter, and wherein respiratory volume measured by said meter is utilized to provide said indication of the arterial carbon dioxide partial pressure of the subject.

38. (Previously presented) Apparatus for computerized breath analysis according to claim 27 and also comprising a pulmonary volume meter, said pulmonary volume meter providing flow rate information, and wherein said flow rate information is utilized to provide said indication of the arterial carbon dioxide partial pressure of the subject.

39. (Previously presented) Apparatus for computerized breath analysis according to claim 26 and also comprising at least one input receiving at least one non-respiratory measurement made on the subject, and wherein said at least one non-respiratory measurement made on the subject is utilized to provide said indication of the discrepancy between the end tidal carbon dioxide partial pressure in breath of the subject and the arterial carbon dioxide partial pressure of the subject.

40. (Previously presented) Apparatus for computerized breath analysis according to claim 27 and also comprising at least one input receiving at least one non-respiratory measurement made on the subject, and wherein said at least one non-respiratory measurement made on the subject is utilized to provide said indication of the arterial carbon dioxide partial pressure of the subject.

41. (Previously presented) Apparatus for computerized breath analysis according to either of claims 39 and 40 and wherein said at least one non-respiratory measurement made on the subject provides information about the condition of the blood circulation such that said information is used to correlate transfer of arterial carbon dioxide from the blood to the exhaled breath of the subject.

42. (Previously presented) Apparatus for computerized breath analysis according to either of claims 39 and 40 and wherein said at least one non-respiratory measurement made on the subject provides information about the content of the blood such that said information is used to correlate transfer of arterial carbon dioxide from the blood to the exhaled breath of the subject.

43. (Previously presented) Apparatus for computerized breath analysis according to either of claims 39 and 40 and wherein said at least one non-respiratory measurement made on the subject comprises at least one of:

- an ECG measurement;
- a pulse rate measurement;
- a pulse oximetric measurement of arterial oxygen saturation level;
- a cardiac output measurement; and
- a body temperature measurement.

44. (Currently amended) Apparatus for computerized breath analysis comprising:

- a breath receiver in fluid communication with a subject;
- a gas analyzer coupled to said breath receiver for measuring the carbon dioxide partial pressure of said breath;

a capnographic interpreter unit ~~breath-analyzer~~ coupled to said ~~breath-receiver~~ gas analyzer which analyzes carbon dioxide waveform shape of at least one breath of the subject for its carbon dioxide content and provides at least

one waveform output parameter characteristic of said waveform shape;

a respiration diagnosis generator; and

at least one input receiving at least one non-respiratory measurement made on the subject;

wherein said respiration diagnosis generator provides ~~an indication of the respiratory clinical state~~ a diagnostic determination of the respiratory state of the subject based on said at least one waveform output parameter and on said at least one non-respiratory measurement.

45. (Previously presented) Apparatus for computerized breath analysis according to claim 44 and wherein said at least one non-respiratory measurement made on the subject comprises at least one of:

an ECG measurement;

a pulse rate measurement;

a pulse oximetric measurement of arterial oxygen saturation level;

a cardiac output measurement; and

a body temperature measurement.

46. (Previously presented) Apparatus for computerized breath analysis according to claim 26 and wherein said apparatus utilizes output of said breath analyzer to provide said indication of said discrepancy.